

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Michael Joseph Stirnimann : Confirmation No.: 5143
Serial No.: 10/644,054 : Art Unit: 1716
Filed: 08/20/2003 : Examiner: Sylvia Macarthur
For: SINGLE DISC VAPOR :
LUBRICATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

The following Appeal Brief is submitted pursuant to the Notice of Appeal filed October 7, 2010 in the above-identified Application.

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(1) Real party in interest

The real party in interest is Seagate Technology LLC, having a place of business in Scotts Valley, California.

(2) *Related appeals and interferences*

There are no known related appeal or interference cases.

(3) *Status of claims*

Claims 1-8, 13-15, 28 and 29 are pending in the present application.

Claims 1-8, 13-15, 28 and 29 stand under final rejection, from which rejection this Appeal is taken.

Claims 9-12 and 24-27 have been canceled.

Claims 16-23 have been withdrawn.

(4) *Status of amendments*

No amendments have been filed subsequent to the final rejection of July 7, 2010.

(5) Summary of claimed subject matter

The following concise explanation of the invention by numbering and insertion of reference pages (p.) and line numbers (l.) is intended to be an example and not limiting.

1. An apparatus comprising,

an elongated lubricant vapor source [13] comprising a chamber [14] fluidly communicating with a plurality of primary plugs [16] having an interior for supplying lubricant vapor, wherein each of the plurality of primary plugs [16] comprises a drilled hole [43] and two openings [45' and 45"] for transporting the lubricant vapor (p. 12, l. 3–8; p. 14, l. 10–20); and

wherein the lubricant vapor source [13] comprises a plurality of threaded holes into which the plurality of primary plugs [16] are screwed therein (p. 14, l. 22–23).

2. The apparatus according to claim 1, further comprising a chamber [1] having an interior space [4] and wherein the chamber [1] is adapted for maintaining the interior space [4] at a pressure below atmospheric pressure (p. 11, l. 3–8).

3. The apparatus according to claim 1, further comprising a substrate loader/unloader [6] and wherein the substrate loader/unloader [6] is adapted for providing cooling/condensation of the lubricant vapor for preventing escape of the lubricant vapor from an interior space [4] of a chamber [1] (p. 11, l. 8–12).

4. The apparatus according to claim 3, wherein the substrate loader/unloader [6] is further adapted for supplying and withdrawing at least one disc-shaped substrate [7] having a pair of opposed surfaces and wherein the substrate loader/unloader [6] is further adapted for mounting or gripping at least one disc-shaped substrate [7] (p. 11, l. 12–15; p. 11, l. 25–28).

5. The apparatus according to claim 4, wherein the elongated lubricant vapor source [13] has a length greater than an outer diameter of the disc-shaped substrate [7] (p. 12, l. 3–7).

6. The apparatus according to claim 1, wherein the elongated lubricant vapor source [13] comprises a closed heated chamber [14] for accommodating liquid lubricant therein and serving as a lubricant vaporizer, the closed heated chamber [14] fluidly communicating with at least the plurality of primary plugs [16] for supplying a stream of lubricant vapor (p. 12, l. 3–10).

7. The apparatus according to claim 6, wherein the elongated lubricant vapor source [13] further comprises a plurality of secondary plugs for increased collimation of the stream of lubricant vapor (p. 12, l. 10–15).

8. The apparatus according to claim 6, further comprising a spaced-apart plurality of the elongated lubricant vapor sources [13] arranged along a path of transport/conveyance [9] of a disc-shaped substrate [7] within the closed heated chamber [14] (p. 12, l. 23–31).

13. The apparatus according to claim 1 further comprising:

a closed heated chamber [14] fluidly communicating with the plurality of primary plugs [16], wherein the closed heated chamber [14] is cylindrically-shaped with circularly-shaped upper and lower ends [3U and 3L] (p. 12, l. 3–10; p. 11, l. 3–5),

a substrate loader/unloader [6] comprising at least one combined substrate load/unload station on one of the upper and lower ends [3U and 3L] (p. 11, l. 8–12); and

wherein the lubricant vapor source [13] further comprises a first plurality of radially extending, elongated lubricant vapor sources [13] for depositing a thin film of lubricant on a first surface of a disc-shaped substrate [7] (p. 11, l. 28–31); and

a substrate transporter/conveyor [9] that is adapted to move the disc-shaped substrate [7] in a circular path past each of the primary plugs [16] (p. 11, l. 22–31).

14. The apparatus according to claim 13, wherein the first plurality of radially extending, elongated lubricant vapor sources [13] further comprises a second plurality of radially extending, elongated lubricant vapor sources for depositing a thin film of lubricant on a second surface of the disc-shaped substrate [17] (p. 12, l. 15–22).

15. The apparatus according to claim 1 further comprising:

an elongated, rectangular box-shaped chamber [21] having a pair of longitudinally extending front [22] and rear [23] walls (p. 13, l. 6–7),

a substrate loader/unloader [26 and 27] comprising a substrate load lock chamber connected to the elongated, rectangular box-shaped chamber [21] at a first end of the front wall [22] and a substrate exit lock chamber connected to the elongated, rectangular box-shaped chamber [21] at a second end of the front wall [22] (p. 13, l. 12–16),

wherein the lubricant vapor source [13] further comprises a plurality of transversely extending, elongated lubricant vapor sources [13] that extend transversely across the front wall [22] in a space between the load lock chamber and the exit lock chamber (p. 13, l. 24–30), and

a substrate transporter/conveyor [28] that is adapted to move a disc-shaped substrate [7] in a linear path past each of the transversely extending, elongated lubricant vapor sources [13] (p. 13, l. 12–16).

28. (Previously Presented) The apparatus according to claim 1, wherein the plurality of primary plugs [16] form a pattern in the form of a linear array, a diagonal array, or a rectangular array (p. 15, l. 3–6).

29. (Previously Presented) The apparatus according to claim 1, wherein the plurality of primary plugs [16] positioned at the outer edges of the lubricant vapor source [13] have a smaller diameter drilled hole than the plurality of primary plugs [16] positioned adjacent to the middle of the lubricant vapor source [13] (p. 14, l. 30–32).

(6) *Grounds for Rejection to be reviewed on appeal*

Issue #1:

Whether Claim 1 was properly rejected under 35 USC §102(b) as allegedly being anticipated by Branderhorst et al (US 5,196,064, hereinafter “Branderhorst”).

Issue #2:

Whether Claim 1 was properly rejected under 35 USC §103(a) as allegedly being unpatentable over Lieher et al (US 6,487,986, hereinafter “Lieher”) in view of Branderhorst or Segerstorm et al (EP 0318071, hereinafter “Segerstorm”).

Issue #3:

Whether Claims 2-8, 13-15, 28 and 29 were properly rejected under 35 USC §103(a) as allegedly being unpatentable over Liehr in view of Branderhorst.

(7) Arguments

Issue #1:

Whether Claim 1 was properly rejected under 35 USC §102(b) as allegedly being anticipated by Branderhorst.

Claim 1

The Appellants' claimed combination in independent Claim 1 includes a feature not disclosed, taught, or suggested in Branderhorst of:

the lubricant vapor source comprises a plurality of threaded holes into which the plurality of primary plugs are screwed therein.

The Examiner states in the Advisory Action dated September 23, 2010 (emphasis added):

[U]pon review of the Figures of Branderhorst et al especially Figures 1 and 3 it is noted that the nozzle assembly of Branderhorst et al comprises a chamber (bridge plate 170) with primary plugs (110, 115). Nuts 123 and 124 have threaded holes to complement the plugs and allow the height adjustment. Branderhorst et al is seen as the primary reference, teaching the claimed structure of the plugs with a drilled hole 128 and two openings (inlet and outlet). Since Branderhorst et al fails to specify *the use of a lubricant source*, the prior art of Liehr et al (US 6,487,986) teaches an elongated vapor source (chamber 1).

Appellants agree with the Examiner Branderhorst fails to teach the use of "the lubricant vapor source," as recited in Claim 1. For these reasons, Appellants respectfully submit that independent Claim 1 is not anticipated by Branderhorst, thereby overcoming the 35 USC §102(b) rejection of record.

Accordingly, the Examiner has failed to establish a *prima facie* case of anticipation for Claim 1. Therefore, the claim rejection is reversible error. Reversal of the rejection is respectfully submitted.

Issue #2:

Whether Claim 1 was properly rejected under 35 USC §103(a) as allegedly being unpatentable over Lieher in view of Branderhorst or Segerstrom.

Claim 1

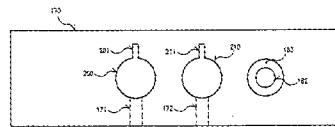
The Examiner has the burden under 35 U.S.C. §103 to establish a *prima facie* case of obviousness. The M.P.E.P. states that: “In order for the Examiner to establish a *prima facie* case of obviousness, three base criteria must be met... the prior art reference (or references when combined) must teach or suggest all the claim limitations.” M.P.E.P. §2142.

The Examiner states on Page 3 of the Final Office Action dated July 7, 2010 that the “Branderhorst et al [reference] features an elongated source (bridge plate 170) that comprises a chamber communicating with a plurality of primary plugs (110, 15)) [sic] and threaded holes that primary plugs are screwed into.” Appellants respectfully submit that Branderhorst fails to teach or suggest the features of “the lubricant vapor source comprises a plurality of threaded holes into which the plurality of primary plugs are screwed therein,” as recited in Claim 1.

Appellants respectfully submit that Branderhorst teaches, “[a]s shown in FIG. 2, bridge plate 170 comprises two bores 200 and 210 for receiving bulkheads such as 122 of nozzle assemblies 110 and 150 as shown in FIG. 1.” (col. 4 ln. 66 – col. 5 ln. 1). Branderhorst’s Figure 2 is reproduced for reference:

U.S. Patent Mar. 23, 1993 Sheet 3 of 4 5,196,064

FIG. 2.



Thus, as illustrated in Figure 2 Branderhorst's bores are smooth and not "threaded holes into which the plurality of primary plugs are screwed therein," as claimed in Claim 1.

Thus, it is clear that a *prima facie* case of obviousness regarding, "the lubricant vapor source comprises a plurality of threaded holes into which the plurality of primary plugs are screwed therein," as claimed in independent Claim 1 has not been met.

Furthermore, the Examiner states in the Advisory Action dated September 23, 2010:

Nuts 123 and 124 have threaded holes to complement the plugs and allow the height adjustment. Branderhorst et al is seen as the primary reference, teaching the claimed structure of the plugs with a drilled hole 128 and two openings (inlet and outlet).

Appellants respectfully submit that Branderhorst fails to teach or suggest the features of "the lubricant vapor source comprises a plurality of threaded holes into which the plurality of primary plugs are screwed therein," as recited in Claim 1.

Appellants respectfully submit that Branderhorst teaches, "[b]ulkhead 122 is affixed to bridge plate 170 using standard polypropylene nuts 123 and 124 which are commercially available," (col. 3 ln. 34 – 36). In addition, the Examiner states on Page 3 of the Final Office Action dated July 7, 2010 that the "Branderhorst et al [reference] features an elongated source (bridge plate 170)." Therefore, Branderhorst teaches that the separate nuts attach the bulkhead to the bridge plate. Branderhorst does not teach plugs screwed into a lubricant vapor source with threaded holes, as claimed by the Appellants. Thus, Branderhorst is different from the Appellants' claimed feature of "the lubricant vapor source comprises a plurality of threaded holes into which the plurality of primary plugs are screwed therein," as recited in Claim 1.

Thus, it is again clear that a *prima facie* case of obviousness regarding, "the lubricant vapor source comprises a plurality of threaded holes into which the plurality of primary plugs are screwed therein," as claimed in independent Claim 1 has not been met.

In addition, Branderhorst teaches away from threaded holes as claimed. The MPEP states, "[w]hen the prior art teaches away from combining certain known elements, discovery of successful means of combining them is more likely to be nonobvious. *KSR*, 550 U.S. at ___, 82 USPQ2d at 1395," (MPEP 2143).

Appellants respectfully submit that Branderhorst teaches:

Holding cap 121 may then be torqued, and nuts 123 and 124 may be used to finely adjust the position of the tip 129 of nozzle 125 for proper alignment with respect to tip 161 of alignment peg 160. During this fine adjustment, because key 303 resides in keyway 201 and notch 304 of bulkhead 122, bulkhead 122 is prevented from rotating with respect to bridge plate 170.

Thus, Branderhorst adjusts the height of the bulkhead by screwing the nuts and preventing rotation of the bulkhead. Appellants respectfully submit that if the bridge plate of Branderhorst was threaded and the bulkhead was screwed therein, it would be impossible to adjust the height of the bulkhead using the nuts without rotating the bulkhead with respect to the bridge plate. Therefore, since Branderhorst teaches that the bulkhead is prevented from rotating with respect to the bridge plate, Branderhorst teaches away from “threaded holes into which the plurality of primary plugs are screwed therein,” as claimed in Claim 1.

Thus, it is yet again clear that a *prima facie* case of obviousness has not been met regarding, “the lubricant vapor source comprises a plurality of threaded holes into which the plurality of primary plugs are screwed therein,” as claimed in independent Claim 1.

Similarly, Lieher, and Segerstorm do not teach or suggest, “the lubricant vapor source comprises a plurality of threaded holes into which the plurality of primary plugs are screwed therein,” as claimed in independent Claim 1.

Accordingly, the Examiner has failed to established a *prima facie* case of obviousness for independent Claim 1. Therefore, the claim rejection is reversible error. Reversal of the rejection is respectfully submitted.

Issue #3:

Whether Claims 2-8, 13-15, 28 and 29 were properly rejected under 35 USC §103(a) as allegedly being unpatentable over Liehr in view of Branderhorst.

Claims 2-8, 13-15, 28 and 29

For the reasons stated above, Appellants respectfully submit that independent Claim 1 is not rendered obvious by the combination of Liehr in view of Branderhorst. Since Claims 2-8, 13-15, 28 and 29 recite further elements to those claimed in independent Claim 1, Appellants respectfully submit that Claims 2-8, 13-15, 28 and 29 are also not rendered obvious by Liehr in view of Branderhorst, thereby overcoming the 35 USC §103(a) rejection of record. Therefore, Appellants respectfully submit that Claims 2-8, 13-15, 28 and 29 are allowable. Reversal of the rejection is accordingly respectfully submitted.

(8) *Claims Appendix*

See Appendix I

(9) *Evidence Appendix*

See Appendix II

(10) *Related Proceedings Appendix*

See Appendix III

Conclusion and Relief Requested:

With respect to the issues presented in this appeal as set forth above in section (6), the Appellants hereby solicit a ruling that:

(a) Claim 1 was improperly rejected under 35 USC §102(b) as allegedly being anticipated by Branderhorst. This rejection should be reversed.

(b) Claim 1 was improperly rejected under 35 USC §103(a) as allegedly being unpatentable over Lieher in view of Branderhorst or Segerstorm. This rejection should be reversed.

(c) Claims 2-8, 13-15, 28 and 29 were improperly rejected under 35 USC §103(a) as allegedly being unpatentable over Liehr in view of Branderhorst. This rejection should be reversed.

Claims 1-8, 13-15, 28 and 29 are patentable, the application is in condition for allowance, and a Notice of Allowance to that effect should be issued.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper,

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including any extension of time fees, to Deposit Account No. 50-4160 and please credit any excess fees to such deposit account.

Respectfully submitted,

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Date: December 6, 2010

APPENDICES follow on separate pages

(8) Claims appendix

Appendix I – Claims on Appeal

1. (Previously Presented) An apparatus comprising,
 - an elongated lubricant vapor source comprising a chamber fluidly communicating with a plurality of primary plugs having an interior for supplying lubricant vapor, wherein each of the plurality of primary plugs comprises a drilled hole and two openings for transporting the lubricant vapor; and
 - wherein the lubricant vapor source comprises a plurality of threaded holes into which the plurality of primary plugs are screwed therein.
2. (Previously Presented) The apparatus according to claim 1, further comprising a chamber having an interior space and wherein the chamber is adapted for maintaining the interior space at a pressure below atmospheric pressure.
3. (Previously Presented) The apparatus according to claim 1, further comprising a substrate loader/unloader and wherein the substrate loader/unloader is adapted for providing cooling/condensation of the lubricant vapor for preventing escape of the lubricant vapor from an interior space of a chamber.
4. (Previously Presented) The apparatus according to claim 3, wherein the substrate loader/unloader is further adapted for supplying and withdrawing at least one disc-shaped

substrate having a pair of opposed surfaces and wherein the substrate loader/unloader is further adapted for mounting or gripping at least one disc-shaped substrate.

5. (Previously Presented) The apparatus according to claim 4, wherein the elongated lubricant vapor source has a length greater than an outer diameter of the disc-shaped substrate.

6. (Previously Presented) The apparatus according to claim 1, wherein the elongated lubricant vapor source comprises a closed heated chamber for accommodating liquid lubricant therein and serving as a lubricant vaporizer, the closed heated chamber fluidly communicating with at least the plurality of primary plugs for supplying a stream of lubricant vapor.

7. (Previously Presented) The apparatus according to claim 6, wherein the elongated lubricant vapor source further comprises a plurality of secondary plugs for increased collimation of the stream of lubricant vapor.

8. (Previously Presented) The apparatus according to claim 6, further comprising a spaced-apart plurality of the elongated lubricant vapor sources arranged along a path of transport/conveyance of a disc-shaped substrate within the closed heated chamber.

Claims 9-12 (Canceled)

13. (Previously Presented) The apparatus according to claim 1 further comprising:

a closed heated chamber fluidly communicating with the plurality of primary plugs, wherein the closed heated chamber is cylindrically-shaped with circularly-shaped upper and lower ends,

a substrate loader/unloader comprising at least one combined substrate load/unload station on one of the upper and lower ends; and

wherein the lubricant vapor source further comprises a first plurality of radially extending, elongated lubricant vapor sources for depositing a thin film of lubricant on a first surface of a disc-shaped substrate; and

a substrate transporter/conveyor that is adapted to move the disc-shaped substrate in a circular path past each of the primary plugs.

14. (Previously Presented) The apparatus according to claim 13, wherein the first plurality of radially extending, elongated lubricant vapor sources further comprises a second plurality of radially extending, elongated lubricant vapor sources for depositing a thin film of lubricant on a second surface of the disc-shaped substrate.

15. (Previously Presented) The apparatus according to claim 1 further comprising:
an elongated, rectangular box-shaped chamber having a pair of longitudinally extending front and rear walls,

a substrate loader/unloader comprising a substrate load lock chamber connected to the elongated, rectangular box-shaped chamber at a first end of the front wall and a substrate exit lock chamber connected to the elongated, rectangular box-shaped chamber at a second end of the front wall,

wherein the lubricant vapor source further comprises a plurality of transversely extending, elongated lubricant vapor sources that extend transversely across the front wall in a space between the load lock chamber and the exit lock chamber, and a substrate transporter/conveyor that is adapted to move a disc-shaped substrate in a linear path past each of the transversely extending, elongated lubricant vapor sources.

16. (Withdrawn) A method of vapor depositing a uniform thickness thin film of lubricant on at least one surface of a disk-shaped substrate, comprising the steps of:

(a) providing an apparatus comprising:

(i) a chamber having an interior space maintained below atmospheric pressure;
(ii) a substrate loader/unloader for supplying said interior space with at least one disk-shaped substrate and for withdrawing at least one disk-shaped substrate from said interior space, said disk-shaped substrate comprising a magnetic or magneto optical data/information storage and retrieval medium;
(iii) at least one lubricant vapor source for supplying said interior space with a stream of lubricant vapor, said vapor source comprising a closed heated chamber fluidly communicating with at least a plurality of primary plugs for supplying a stream of lubricant vapor; and

(iv) a substrate transporter/conveyor for continuously moving at least one substrate past said stream of vapor from said at least one lubricant vapor source;

(b) supplying said interior space with a substrate having at least one surface;

(c) continuously moving said substrate past said stream of lubricant vapor and depositing a uniform thickness thin film of said lubricant on said at least one surface; and

(d) withdrawing the lubricant-coated disk-shaped substrate from said interior space.

17. (Withdrawn) The method as in claim 16, wherein:

step (b) comprises supplying a disc-shaped substrate having a pair of opposed surfaces.

18. (Withdrawn) The method as in claim 17, wherein:

step (b) comprises supplying a disc-shaped substrate having a laminate of layers for a magnetic or magneto-optical (MO) data/information storage and retrieval medium formed on at least one of said pair of opposed surfaces.

19. (Withdrawn) The method as in claim 18, wherein:

step (c) comprises vapor depositing a thin film of a polymeric fluorine-containing lubricant on said laminate of layers on at least one of said pair of opposed surfaces.

20. (Withdrawn) The method as in claim 17, wherein:

step (a)(iii) comprises providing an apparatus with at least one elongated lubricant vapor source having a length greater than an outer diameter of said disc-shaped substrate, said at least one elongated lubricant vapor source comprising a closed heated chamber for accommodating liquid lubricant therein and serving as a lubricant vaporizer, said closed heated chamber fluidly communicating with a plurality of primary plugs for supplying said stream of lubricant vapor.

21. (Withdrawn) The method as in claim 20, wherein:

step (a) comprises providing an apparatus wherein said chamber (i) is in the form of a cylinder with circularly-shaped upper and lower ends; said substrate loader/unloader (ii) comprises at least one combined substrate load/unload station on one of said upper and lower ends; said at least one elongated lubricant vapor source (iii) comprises a first plurality of spaced-apart, radially extending, elongated lubricant vapor sources for depositing a thin film of lubricant on a first one of said pair of opposed surfaces of said disc-shaped substrate; and said substrate transporter/conveyor (iv) is adapted to move said at least one disc-shaped substrate in a circular path past each of said first plurality of spaced-apart, radially extending, elongated lubricant vapor sources.

22. (Withdrawn) The method as in claim 21, wherein said at least one elongated lubricant vapor source (iii) further comprises a second plurality of spaced-apart, radially extending, elongated lubricant vapor sources for depositing a thin film of lubricant on a second one of said pair of opposed surfaces of said disc-shaped substrate.

23. (Withdrawn) The method as in claim 20, wherein step (a) comprises providing an apparatus wherein said chamber (i) is in the form of an elongated, rectangularly-shaped box having a pair of longitudinally extending front and rear walls; said substrate loader/unloader (ii) comprises a substrate load lock chamber connected to said chamber at a first end of said front wall and a substrate exit lock chamber connected to said chamber at a second end of said front wall; said at least one elongated lubricant vapor source (iii) comprises a plurality of spaced-apart, elongated lubricant vapor sources transversely extending across said front wall in the space between said load lock and said exit chambers; and said substrate transporter/conveyor (iv) is

adapted to move said at least one disc-shaped substrate in a linear path past each of the plurality of spaced-apart, transversely extending, elongated lubricant vapor sources.

Claims 24-27 (Canceled)

28. (Previously Presented) The apparatus according to claim 1, wherein the plurality of primary plugs form a pattern in the form of a linear array, a diagonal array, or a rectangular array.

29. (Previously Presented) The apparatus according to claim 1, wherein the plurality of primary plugs positioned at the outer edges of the lubricant vapor source have a smaller diameter drilled hole than the plurality of primary plugs positioned adjacent to the middle of the lubricant vapor source.

(1) Evidence appendix

APPENDIX II

Evidence under 37 CFR 1.130, 1.131, or 1.132 entered by examiner and relied upon by appellant or any other evidence entered by the examiner and relied upon by appellant in the appeal, along with a statement setting forth where in the record that evidence was entered by the examiner

37 CFR 41.37(c)(1)(ix)

None

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(2) *Related Proceedings appendix*

APPENDIX III

Decisions rendered by a court or the Board identified in
Related Appeals and Interferences section

37 CFR 41.37(c)(1)(x)

Copies of the following decisions are herein enclosed:

None